DOCUMENT RESUME

ED 195 968 CS 005 782

AUTHOR Achilles, C. M.; Ray, John
TITLE Shelby County (TN) Special Emphasis Right-to-Read Project (Fall, 1976-Fall, 1979). Volumes I and II. Final Evaluation Report.
INSTITUTION Tennessee Univ., Knoxville. Bureau of Educational Research and Service.
PUB DATE 80
NOTE 50p.

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Directed Reading Activity; Elementary Education; *Program Evaluation; Program Improvement; *Reading Improvement; *Reading Research; Reading Teachers; *Remedial Reading; Teacher Behavior
IDENTIFIERS *Right to Read

ABSTRACT

From 1976 through 1979, Shelby County, Tennessee, schools participated in a Right to Read Special Emphasis project. An experimental and a control school were used, in which more than 50% of the pupils read one or more grades below level. The project included the use of reading specialists, a structured reading system (DISTAR), a summer reading program, parental involvement, teacher in-service, free book distribution, and other techniques. The subsequent internal evaluation of the project data took four approaches: (1) compilation and analysis of aggregated data on a year-by-year basis; (2) a regression model using historical data from 1972 to 1976 and data collected over the project duration; (3) a pretest/posttest, experimental/control model for analyzing data by analysis of covariance techniques; (4) analysis of pre- and postteaching behaviors of the five teachers who were teaching reading to the same grade levels in 1977 and in 1979. The evaluation showed that the number and percentage of youngsters reading below grade level decreased, the project school average IQ increased, teacher behavior became more positive, and the use of specialists working with teachers--in their own rooms with their own pupils--seems superior to the traditional pull-out compensatory effort. (HTH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED195968

FINAL EVALUATION REPORT

SHELBY COUNTY (TN) SPECIAL EMPHASIS RIGHT-TO-READ PROJECT
(FALL, 1976-FALL, 1979)
Work reported herein was done in contract with:

Shelby County, Tennessee, Public Schools
160 S. Hollywood
Memphis, TN 38112
Mr. Ward L. Harvey, Superintendent

Volume I: Basic Evaluation Report and Appendixes
II: Executive Summary

Project Director: Dr. Harriet B. Crump, Shelby County Schools
Director of Elementary and Secondary Education
160 S. Hollywood, Memphis, TN 38112

Compiled, Written and Edited by:
Dr. C. M. Achilles, Bureau of Educational Research and Services, College of Education, University of Tennessee
Dr. John Ray, Curriculum and Instruction, College of Education, University of Tennessee

with Assistance of:

Mrs. Oneida Martin, Curriculum and Instruction
Dr. Jean Smedley, Metro Nashville Schools
Dr. Doris Scott Crawford, Knoxville, TN

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

C.M. Achilles

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Vol. I Evaluation Report and Appendices

Bureau of Educational Research and Service
College of Education
University of Tennessee
Knoxville, TN 37916
1980

CS005782

TABLE OF CONTENTS

ITEM	PAGE
Cover	i
Contents	ii
Acknowledgements	iv
Project Assistants	iv
Abstract	v
Indroduction	1
Objectives	1
Design	1
Background and Context	2
Data Files	3
Historical Comparisons on Reading Scores in Target Schools	4
Data Collection Points	5
Data Sources	5
Discussion of Mean Grade Equivalents for Pupils with Complete Data Files	5
Regression Equations (MAT Total Reading)	8
Experimental Group (Grade 4: 1979, 1978, 1977)	8
Experimental Group (Grade 5: 1978, 1977)	9
Control Group (Grade 4: 1979, 1978, 1977)	10
Control Group (Grade 5: 1978, 1977)	11
To Predict Fall, 1979 (Experimental and Control)	11
Regression Equations Using Pre-Intervention Data	12
Experimental	12
Control	13
Discussion	14
Analysis of Covariance Comparisons	14
Fall Data	15
Spring Data (Grade 4)	15
Spring Data (Grade 5)	15
Discussion	15
Analyses of Teacher and Pupil Interaction	19
PIT Analyses	21
IDER Analyses	23
Teacher Behavior: Summary	27
Summary	29

TABLES AND FIGURES

Table 1	Comparisons of School on Major Variables	3
Table 2	Percents of Pupils (grades 3-6) Reading Below Grade Level	4
Table 3	Percents of Pupils (grades 3-8) Reading Below and Above Grade Level	4
Table 4	Average Grade Equivalents by Grade (1972-1979)	6
Table 5	Covariance Comparisons, Grade 4 (Fall Data)	16

TABLE OF CONTENTS (cont'd.)

Table 6	Covariance Comparisons, Grade 5 (Fall Data)	17
Table 7	Covariance Comparisons, Grades 4 and 5 (Spring Data)	18
Figures 1A and 1B	IDER System	20
Table 8	PIT Summary Data	22
Table 9	Composite IDER Ratio Computations	24
Table 10	Frequency and Percent of Teacher Behaviors	25

APPENDICES (Reading Test Data)

A	Expanded Reading Test Data (Grades 2-8)
B	Average Grade Equivalent by Sex by School
C	Average Grade Equivalent by Sex, by Race, by School
D	Chi-square analysis results

Acknowledgements

Special thanks to the teachers and pupils (1976-1980) at Barrets' Chapel (Experimental School) and Arlington Elementary (Control School) for their assistance in this evaluation. They completed forms, tests, answered questions and allowed videotaping of some sessions.

It would have been impossible to complete this study without the full cooperation of both administrative and clerical staff, and of the reading specialists in the experimental school. A special acknowledgement to Mr. Ralph Haynes, Principal at Barrets' Chapel for his assistance, and particularly for his wisdom and deep knowledge of the school, community, pupils and staff.

Project Assistants

Dr. Jean Smedley Dr. James Leonard	Data Collection, verification, Interviews with teachers. Initial data for historical files.
Dr. Charles Faires Dr. James Leonard Dr. Michael Crist	Videotaping of classroom teacher-pupil interactions.
Dr. Jean Smedley Ms. Oneida Martin	Preliminary data manipulations and data analyses.
Dr. Doris Scott Crawford	Data analyses of teacher/pupil interactions using two observation systems.

Dr. Smedley's doctoral dissertation resulted from work related to this evaluation. The Effect of Intensive Reading Instruction on the Reading Achievement of Low Socio-Economic Elementary Students in a Rural Tennessee School System: The Development of an Evaluation Model. University of Tennessee, Knoxville. June, 1979 (Unpublished).

Dr. Crawford's doctoral dissertation resulted from work related to this evaluation. Analyses of Verbal and Nonverbal Behaviors of Teachers Teaching Reading to Determine if Change Occurred During an Experimental Reading Project. University of Tennessee, Knoxville. August, 1980. (Unpublished).

EVALUATION OF SHELBY COUNTY (TN) SPECIAL EMPHASIS RIGHT-TO-READ PROJECT, 1976-1979

Introduction:

By passing Part D (Special Emphasis Projects) of the National Reading Improvement Act, Congress mandated an educational experiment. The act required control and experimental schools to be matched according to curricula, socio-economic status (SES), race, and other factors. Part D required that reading programs in experimental schools (grades 1-6) be conducted by reading teachers or specialists (as defined in the Act). Part D also defined the minimum amount of time that must be devoted to the reading instruction. Eight Special Emphasis projects were originally funded nationally -- anticipated to last three years. A contractor was sought to evaluate the results across all sites. (There were seven sites at the conclusion.)

The Shelby County project was not a "pull-out" effort so popular in many compensatory situations. Specialists worked with teachers and pupils in regular classrooms. A structured reading system (DISTAR), summer school, parent involvement, in-service training and paperback (RIF) reading activities were program components. Three reading specialists worked in the experimental school.

In evaluating large-scale programs, it is often difficult to establish a true experimental/control study; some contamination seems inevitable. Experimental design is often not feasible, and if attempted, it often entails expenses and constraints that schools tolerate unwillingly. The federal Right-To- Read evaluation across sites required additional testing and other controls. Shelby County decided to design and conduct its own evaluation to monitor project progress and to see if an adequate evaluation could be conducted using the district's own testing program (a prime consideration of the local level since it would reduce costs and time spent taking tests). The evaluation had other objectives.

Objectives

Basic evaluation objectives were to: 1) describe the project, its context, and discuss aggregate data depicting the relative positions of the experimental and control schools among other schools in the system; 2) evaluate the Special Emphasis reading project using available school district data and the regular testing program; 3) seek an alternative to the pre-post (experimental/control) experimental design that would provide equivalent results; 4) compare results of the alternative evaluation method with the traditional evaluation method; 5) identify (where possible) effects of major project components; and 6) determine the grade level(s) of maximum impact.

Design

The experimental (n = 610) and control (n = 351) schools were matched on the requisite variables defined in the law. At the outset, the experimental school was approximately twice as large as the control school.* Seventy percent (control school) and 72 percent (experimental school) of pupils were reading one or more years below grade level (grades 3-6); 85 percent participated in the free lunch program.

The design is the "non-equivalent control group design"--Campbell and Stanley design 10. However, attention to matching the schools on all requisite variables strengthens the design. Randomness was impossible. Intact groups were used for some comparisons; individual scores were combined to generate

*These figures represent the target group at project start; there was little variation in total enrollments throughout the project's duration.

grade-level regression equations, ANCOVA and other comparisons. Descriptive data were a major element in the evaluation.

Background and Context

A separate experimental/control, pre-post evaluation of the total Special Emphasis program was conducted by an external evaluator. This evaluation analyzed many variables (such as parent attitudes) that were not considered in the internal evaluation. The external evaluation used the Stanford Diagnostic Test and specially designed questionnaires for pre/post analyses.

The internal (county-supported) evaluation used an experimental/control, pre/post design based on the school system's regular testing program--the Metropolitan Achievement Tests (MAT). In addition, however, this evaluation used regression analyses--prediction equations--and compared results of both evaluation approaches. The internal evaluation was longitudinal; it followed target and control youngsters throughout the project, and it also used historical data as a basis for the regressions. Preliminary to statistical manipulations, some context and descriptive data need to be underscored.

Table 1 compares the relative positions of project and control schools on major variables as required by the Federal Regulations governing awards in the Special Emphasis Program at the time of the award (1976). Note that the schools were well-matched on the requisite variables (except that the project school is larger). Table 1 data reflect 1976, the project's first year.

Project and control schools had "hard core" reading problems. In 1972, Shelby County had 10 schools where 50 percent or more of the pupils were reading one or more grades below level; by 1975 this number had been reduced to three schools through intensive local effort. Both project and control schools had 1) relatively stable pupil and teacher populations and 2) excellent ADA (over 95 percent).* Both were Title I schools receiving extra support for reading in laboratories (e.g., pull-out programs). Both schools contained grades K-8, which will facilitate follow-up on the Special Emphasis 1-6 project. (Appendix A contains additional data about the experimental and control schools from 1974-1979).

One way to review both the condition prior to the Special Emphasis project and obtain a "down and dirty" look at progress is to compare project and control schools over time on grossly aggregated data. Note: Although the terms project and control are used, there was some obvious "slippage" between the two. Good teachers find ways to capitalize on successful programs regardless of project constraints. In addition, to assure similarity between the pupil populations in both schools, two schools were chosen that were quite close together in a relatively remote section of the county. The teachers knew each other and often shared inservice sessions. Appendices A, B and C and Tables 2 and 3 provide data for longitudinal comparisons.

---

*Average Daily Attendance (ADA) in control and experimental schools is about 95 percent of Average Daily Membership (AMA). The schools have stable populations; there is little pupil mobility between the two schools even though the schools are near each other and serve basically the same populations (SES, etc).

Data Files

Data files were constructed for all pupils using MAT, I.Q., Sex, Race, Grade Retention, Free Lunch, Absences and School of Attendance. Some files were incomplete (a student may have missed a testing). Regressions and other comparisons were made only for pupils with complete files. Gross grade comparisons used all available scores for that grade.

TABLE 1
COMPARISON OF PROJECT AND CONTROL
SCHOOLS ON MAJOR DEMOGRAPHIC (1976) VARIABLES

	PROJECT SCHOOL		CONTROL SCHOOL	
	N	%	N	%
Teachers	29	100	18	100
White	18	62	13	72
Other	11	38	5	28
M.S.	11	38	5	28
B.S.	18	62	13	72
12 or more hrs. of Reading	3	10	0	0
Pupils	610	100	351	100
White	153	25	144	40
Other	457	75	207	60
Below Grade Level (1 or more yrs.) 1975-76 (Grades 3-6)	204	72	117	70
Grade 3	37	57	14	42
4	54	89	33	92
5	59	72	34	72
6	54	76	36	70
Receiving Free Lunches (Based on school lunchroom reports submitted to State Department of Education, September, 1975)	518	85	295	84
Title I Eligibles (Based on Shelby County ESEA-1 Project 76-01 approved by State Department of Education for 1975-76 school year)	494	81	259	74
Curriculum Materials in Reading: The same materials/books are used in both schools (Detail in proposal)				
Instructional Approaches: The same instructional approaches are used in both schools (Detail in proposal)				

Mean IQ (Otis Lennon) For Years 1975-1979

Grades	County					Project School					Control				
	75	76	77	78	79	75	76	77	78	79	75	76	77	78	79
3	100	109	102	105	106	85	84	85	87	98	85	94	92	96	95
5	98	101	103	104	105	83	83	89	86	92	80	85	97	90	97
7	--	--	99	102	104	--	--	94	88	92	--	--	87	86	90

Difference (+ or -) in mean IQ in project and control schools (based on project school)

Grades	75	76	77	78	79	
3	0	-10	-7	-9	+3	
5	+3	-2	-8	-4	-5	
7	-	-	+7	+2	+2	
Net difference	+3	-12	-8	-11	0	-28

5 of 13 favor project

7 of 13 favor control

BEST AVAILABLE COPY

Historical Comparisons on Reading Scores in Target Schools

Table 2 presents the percent of youngsters in grades 3-6 reading one or more years below grade level for the years 1972-1979. (Note: The project ran 1976-77, 1977-78, and 1978-79. Final testing was Fall, 1979 for the external evaluation. The internal evaluation may follow students for two more years.) The low achievement pattern is reflected in these data, and probably could be expected from median I.Q. scores (See Table 1). Note the decline in percent reading below grade level in both project and control schools.

TABLE 2

Percent of Youngsters, Grades 3-6, Reading One or More Years Below Level (1972-79)

	Year				Project Start ↓			
School	1972	1973	1974	1975	1976	1977	1978	1979
Project	82	68	73	72	68	63	46	53
Control	67	76	71	70	71	50	46	43

In 1974 the County began reporting its school achievement data in more detail and used a grade 3-8 reporting pattern where feasible. This pattern was appropriate for project and control schools; Table 3 presents data in the 3-8 format, including students above and below grade level. (Additional detail appears in Appendix A.) From Fall, 1976 to Fall, 1979 both schools improved. The project school reduced the percent below grade level by 13 and increased the percent above grade level by 6. Control figures were 12 and 6 percent.

TABLE 3

Percent of Youngsters, Grades 3-8, Reading One or More Years Below (B) and Above (A) Level (1974-79)

	Year											
	1974		1975		Start ↓ 1976		1977		1978		1979	
School	B	A	B	A	B	A	B	A	B	A	B	A
Project	75	4	75	4	71	6	63	9	56	12	58	12
Control	70	8	71	5	65	4	59	6	53	10	53	10

County norms (1978) reveal 30 percent of county students (3-8) were reading one or more grades above level and 25 percent were one or more years below level. The 1979 county norms showed 33 percent above and 22 percent below.
Of interest (descriptively) are the dual trends of the decrease in percent of youngsters below grade level and the increase in percent of youngsters above level. These trends start in 1976 (the start of the project) and appear in both project and control schools. The low percent of youngsters reading one or more years above grade level suggests that there are not some high-scoring pupils pulling up mean scores in either school; gains are being achieved the hard way--all youngsters are moving slowly forward.

Data Collection Points

During the total study, there were seven data collection times: Fall 1976, Spring 1977, Fall, 1977, Spring 1978, Fall 1978, Spring 1979, and Fall 1979. This current report includes only Fall, 1976 through Fall, 1979, although regression equations are built on historical data back to 19[illegible]2. It is anticipated that the evaluation for Shelby County will use data through Fall, 1980 to provide information on retention of gains. (Context data are through Fall, 1979).

Data Sources

Data sources included pupil records on Metropolitan Achievement Tests (MAT) given each year, attendance records, and student permanent records. School visitations and interviews with staff, reading specialists and administrators provided context information.

Discussion of Mean Grade Equivalents for Pupils (Including Data from prior Years).

Table 4 shows the historical pattern of achievement in terms of mean grade equivalent on the Metropolitan Achievement Test (MAT) for pupils in the control and experimental groups. Data indicate the results as stored in the pupil file for grades 1-6 starting with Fall 1972 (where appropriate) and continuing through Fall 1979. The treatment started in the Fall, 1976.

Data show, in many cases, that the experimental group obtained higher mean values than the control group after the project began. A review of second grade (Fall) scores from 1972-1978 shows that there was not much variation between entering groups in the experimental and control groups. Over the seven-year span the average scores were 1.78 and 1.76. (See summary at end of Table 4). However, before the project started the average Fall MAT (second grade) score favored control pupils (1.71 to 1.66); after the treatment started the average slightly favored the experimental group (1.92 to 1.89). Spring MAT mean scores for 1977-1979 (during the project) favored the experimental group slightly (2.82 to 2.72). Similar comparisons for grade 3 MAT average scores show similar results. Over the seven-year span, results slightly favored the experimental group (2.53 to 2.45); from 1976-1979 results favored the experimental group 2.71 to 2.67 and from 1973-1975 the mean scores favored the experimental group 2.29 to 2.16.

Scores shown in the "change" column identify differences obtained between two testing periods. Note that between Spring and Fall (over the summer) there is generally less gain--or even a loss--than during the year. The loss appears more frequently between grades 3-4 and 4-5 than in lower grades, and there generally is larger gain or smaller loss in the experimental school (where some pupils attended summer school) than in the control school.

Both control and experimental schools were K-8 schools where there was complete departmentalization in grades 7 and 8. Note (scores marked by "a") that in all six listed cases there was a substantial decrement in mean scores over the summer between grades six and seven. It is hard not to speculate that something about the grade level or the "promotion" or something else is working here in a consistent or patterned way.

Table 4 also shows for each grade the point where the project or treatment began (⟵) and points where summer school occured for experimental school youngsters (<).

TABLE 4

Average Grade Equivalent for Total Reading (MAT)
by Year for Shelby County Right to Read Pupils
(Record of each grade before the project
and during the project--1976-1979.
Project started in Fall, 1976)

< = Summer School

(Grade Where treatment started)		Project Start	Control Group Change	Control Group X	Control Group N	Experimental Group Change	Experimental Group X	Experimental Group N
(Grade 1)								
Gr 1	Spring 77	✓		1.60	26		1.57	49
2	Fall 77		.16	1.76	20	.16	1.73	41
2	Spring 78		.60	2.36	20	.81	2.54	46
3	Fall 78		.30	2.66	33	.23	2.77	52
3	Spring 79		.98	3.64	30	.76	3.53	50
4	Fall 79		-.39	3.25	31	-.50	3.03	61
(Grade 2)								
Gr 2	Fall 76	←	.79	1.70	31	.83	1.74	46
2	Spring 77		.01	2.49	36	.04	2.57	51
3	Fall 77		.48	2.50	27	.52	2.61	45
3	Spring 78		.53	2.98	26	.23	3.13	42
4	Fall 78		1.11	3.51	40	.92	3.36	60
4	Spring 79		-.33	4.62	35	-.07	4.28	58
5	Fall 79			4.29	37		4.21	62
(Grade 3)								
Gr 2	Fall 75		.53	1.70	18	.74	1.58	42
3	Fall 76	←	.34	2.23	22	.76	2.32	48
3	Spring 77		.42	4.57	24	-.40	3.08	48
4	Fall 77		1.09	2.99	21	.66	2.68	41
4	Spring 78		.25	4.08	21	.38	3.34	41
5	Fall 78		.90	4.33	41	.58	3.72	42
5	Spring 79		.18	5.23	38	.34	4.30	39
6	Fall 79			5.41	35		4.64	48
(Grade 4)								
Gr 2	Fall 74		.62	1.73	17	.66	1.54	43
3	Fall 75		.30	2.35	22	.57	2.20	48
4	Fall 76	←	.90	2.65	34	.91	2.77	56
4	Spring 77		-.09	3.55	34	-.16	3.68	57
5	Fall 77		1.01	3.46	27	1.00	3.52	48
5	Spring 78		.18	4.47	27	.52	4.52	48
6	Fall 78		.73	4.65	32	.67	5.04	53
6	Spring 79	<	-.49	5.38	32	-.45	5.71	50 <
7	Fall 79			4.89	33		5.26	42

All changes are positive (+) unless marked (-). Not all youngsters in the experimental school attended summer school.

			Control Group			Experimental Group	
			X	N		X	N
(Grade 5)							
Gr 2	Fall 73	.08	1.99	17	48	1.80	41
3	Fall 74	.16	2.07	17	56	2.28	47
4	Fall 75	1.35	2.23	20	.60	2.84	48
5	Fall 76 ←	.65	3.58	29	.69	3.44	59
5	Spring 77	.01	4.23	34	-.02	4.13	64
6	Fall 77	.88	4.24	29	1.06	4.11	45
6	Spring 78 a	-.43	5.12	29	-.35	5.17	37 a
7	Fall 78	.87	4.69	32	1.13	4.82	59
7	Spring 79		5.56	27		5.95	59
(Grade 6)							
Gr 2	Fall 72	.65	1.42	19	.67	1.73	43
3	Fall 73	.23	2.07	19	.31	2.40	50
4	Fall 74	.65	2.30	17	1.04	2.71	48
5	Fall 75	1.20	2.95	24	.35	3.75	62
6	Fall 76 ←	.75	4.15	32	1.39	4.10	82
6	Spring 77 a	-.29	4.90	37	-.34	5.49	83 a
7	Fall 77	.88	4.61	24	.68	5.15	66
7	Spring 78		5.49	22		5.83	69
1977-78: Grade 1 (Entering)							
Gr 1	Spring 78	.30	1.91	40	.45	1.84	54 <
2	Fall 78	1.11	2.21	25	1.06	2.29	46
2	Spring 79	-.02	3.32	22	-.21	3.35	44 <
3	Fall 79		3.30	34		3.14	50

(Grade 2) Fall

	Control	Exp.
1978	2.21	2.29
1977	1.76	1.73
1976	1.70	1.74
Ave.	1.89	1.92
1975	1.70	1.58
1974	1.73	1.54
1973	1.99	1.80
1972	1.42	1.73
Ave.	1.71	1.66
Total	1.78	1.76

Spring

1979	3.32	3.35
1978	2.36	2.54
1977	2.49	2.57
Ave.	2.72	2.82

(Grade 3) Fall

	Control	Exp.
1979	3.30	3.14
1978	2.66	2.77
1977	2.50	2.61
1976	2.23	2.32
Ave.	2.67	2.71
1975	2.35	2.20
1974	2.07	2.28
1973	2.07	2.40
Ave.	2.61	2.29
Total	2.45	2.53

Spring

1979	4.62	4.28
1978	4.08	3.34
1977	3.55	3.68
Ave.	4.08	3.79

REGRESSION EQUATIONS (MAT TOTAL READING)

Regression equations were developed for each school and for selected grade levels within each school. Selected variables including I.Q., pupil absences, Metropolitan Achievement Tests scores (the district's usual testing program), sex, free or reduced lunch, race and grade retention were examined. Again, for illustrative purposes, this paper uses regression equations with MAT and I.Q. variables with data categorized using control and experimental schools and grade designations. Illustrative regression equations follow.

In the regression computations, only those students with complete data files were used. In general descriptive data, all students with a score for a particular test were used.

The illustrative regression equations are presented showing two or three variables included for predictive purposes. For practical purposes most school districts need to know the best or perhaps the two best potential predictors of successes. To include more variables is generally not cost efficient for the school system (unless computer services are available) and the data base for many schools does not provide for extensive test coverage.

The regression equations are based only on prediction of the Total Reading (TR) score of the MAT. Note that in predicting both 4th and 5th grade Total Reading, using Fall test data, more variance can be accounted for in the control than in the experimental school.

Base regression equations were computed using Fall scores as these constituted the districts normal testing program. Additional or secondary regression equations were developed using the Spring test data gathered specifically for this project. In the presentations below some variables that contributed little or nothing to improving the predictability are only mentioned in the narrative, but are not shown in the equations.

Experimental Group (Grade 4: 1979, 1978, 1977)

When regression equations were computed for the Grade 4 Experimental Group, it was found that to predict TR 1979 (A, below), the best single indicator was TR Grade 4 which accounted for 0.34 percent of the variance. When other variables were identified for possible inclusion in this equation, the addition of TR Grade 2 improved the multiple R^2 value to 0.41. Inclusion of TR3 coupled with the orignial two variables improved the prediction to 0.44. When IQ3 (I.Q. taken in grade 3) was added to the original set of variables it was possible to increase the R^2 value to only 0.47. IQ3 was determined to be the fourth most important variable in the equation.

A. (1) *TR Fall, 1979 = 1.25 TR Grade 4 (Fall) + 1.05

(2) **TR Fall, 1979 = 1.48 TR Grade 4 (Fall) - 1.79 TR Grade 2 (Fall) + 3.16

$*R^2 = 0.34$

$**R^2 = 0.41$

In reading abbreviations in the regressions, TR means Total Reading; TR3 or TR4 (etc.) mean Total Reading grade 3 or grade 4. TR S79 would be Total Reading, Spring 1979; TR F78 would be Fall, 1978; TR2F would be Total Reading, Grade 2, Fall Testing.

In predicting Total Reading, Fall 1978, TR4 was the single most important variable. When additional variables were added, the variables of TR3, TR2 and IQ3 were most important in that order. The addition of variables TR3, TR2 and IQ3 increased the predictive R^2 from 0.46 (using only TR4) to 0.50 when all four variables were used. Use of the two most powerful variables, TR4 and TR3 produced on R^2 of .48. Addition of two additional variables for a gain of .02 seemed extravagant. (See B, below).

B. (1) *TR Fall, 1978 = 0.80 TR Grade 4 (Fall) + 2.27

(2) **TR Fall, 1978 = 0.61 TR Grade 4 (Fall) + 0.40 TR Grade 3 (Fall) + 1.96

$$* R^2 = 0.46$$

$$** R^2 = 0.48$$

In predicting TR Fall 77, the single most important predictor was again the TR4. In this case, the presence of an IQ score at Grade 3 was found to be the second most important variable. However, the amount of variability predicted using these particular data accounted for 0.32 when using TR4 only, and 0.34 when using TR4 and IQ3. As a matter of fact, to include TR4, IQ3, TR3 and TR2 increased the predictive value only to 0.34 (or no appreciable gain by the inclusion of the two other variables).

A. (1) *TR Fall, 1977 = 0.62 TR Grade 4 (Fall) + 1.88

(2) **TR Fall, 1977 = 0.52 TR Grade 4 (Fall) + 0.02 IQ3 + 0.62

$$* R^2 = 0.32$$

$$** R^2 = 0.34$$

Experimental/Group (Grade 5:1978, 1977)

Data for Grade 5 show that the best predictor (.67) for TR78 (Fall) is based on the use of TR4 (Fall) data. Addition of TR3 increases the prediction to .71; addition of TR2 increases it to .72. Addition of TR5 (Fall) does not affect the predictive validity of the equation.

TR 78 (Fall) = 0.90 TR4 + 2.27 (R^2 = .67)

To add IQ5 (I.Q. test given in 5th grade) to the previous original list did not displace TR4 as the best single predictor for the Fall 1978 measure for fifth graders. However, the IQ5 score moved into second place in importance, and the combination of TR4 and IQ5 accounted for 0.73 percent of the variance. Again, to add three additional variables (in this case TR3 and TR2 and TR5) increased the predictive value of R^2 to only 0.75. Clearly the addition of these last three variables was not worth the cost involved.

TR 78 (Fall) = 0.69 TR4 + 0.03 IQ5 + 0.42 (R^2 = .73)

In examining TR 77 (Fall) results, TR4 was again the single best predictor. (0.69). When a second best predictor was sought, IQ5 was chosen as the best available. If IQ5 was not available, TR2 was identified as the most significant additional variable. When IQ5 is available, the combination TR4 and IQ5 accounted for 82 percent of variance. When IQ5 is not available and TR2 is used as the second most contributory variable, 0.72 percent of the variance is accounted for.

TR 77 (Fall) = 1.02 TR4 + 1.21 (R^2 = .69)

TR 77 (Fall) = 0.61 TR4 + 0.06 IQ5 - 290 (R^2 = .82)

Control Group (Grade 4:1979, 1978, 1977)

When TR 1979 (Fall) was predicted for the Grade 4 control group, TR2 was chosen as the first variable. This accounted for 88 percent of the variance (see A, below); addition of TR4 allowed the equation to account for 93 percent of the variability. The addition of TR3 and IQ3 accounted for an additional amount of variability up to 0.97. The addition of IQ to the three reading variables was of minimal value, with IQ being the fourth variable being selected for the predictive set.

A. (1) *TR Fall, 1979, = 4.17 TR Grade 2 (Fall) - 1.26

(2) **TR Fall, 1979, = 2.80 TR Grade 2 (Fall) + 0.43 Grade 4, Fall - 0.24

* R^2 = 0.88

** R^2 = 0.97

When the Fall 1978 Total Reading score was predicted, TR4 was the best single indicator of success and accounted for 80 percent of the variance. (See B, below). Combining with this particular dependent variable, the addition of IQ3 accounted for an additional variance quantity of 0.05 raising the total R^2 to 0.85. The addition of TR2 and TR3 accounted for little more variability.

B. (1) *TR Fall, 1978, = 1.13 TR Grade 4 (Fall) + 1.55

(2) **TR Fall, 1979, = 0.93 TR Grade 4 (Fall) + 0.03 IQ3 = 0.91

* R^2 = 0.80

** R^2 = 0.85

When the prediction of Total Reading, Fall 1977, score was made, TR3 was found to be the single best predictor of success with TR4 and TR2 following. The single variable of TR3 accounted for 66 percent of the variability; addition of TR4 and TR2 brought the entire amount of variance accounted for to 72 percent. When IQ3 was combined with the Reading variables, TR3 again was indicated as the most important, but IQ3 contributed the second highest amount to the value of R^2. However, the variability accounted for by TR3 alone was 0.66 and the addition of IQ3 raised the R^2 value only to 0.71. Addition of TR2 and TR4 raised the variance to 0.76 (See C on next page).

C. (1) *TR Fall, 1977, = 1.76 TR Grade 3 (Fall) - 0.48

(2) **TR Fall, 1977, = 1.64 TR Grade 3 (Fall) + 0.03 IQ3 - 2.78

*R^2 = 0.66

**R^2 = 0.71

Control Group (Grade 5:1978,1977)

When analyses were made for TR 78 (Fall) for grade 5 pupils, TR5 was indicated as the most significant single variable, accounting for 85 percent of the variability. Addition of TR4 added only 0.3 percent to .88. Addition of TR2 and TR3 added nothing to the variability.

TR 78 = 1.51 TR5 - 0.99 R^2 = 0.85

TR 78 = 0.82 TR5 + 0.74 TR4 - 0.35 R^2 = 0.88

When IQ5 was added as a variable to the prediction of Total Reading, Fall 1978 scores, TR5 again emerged as the most important variable with TR4 again identified as second. It was not until the addition of a third variable where IQ5 made a significant contribution. This raised the value of R^2 from 0.85 to 0.90.

These results suggest that instruction in the experimental school, grade 4, probably is a key factor since IQ does not emerge as a significant prediction variable. This is unusual since IQ is generally a verbal measure highly related to reading skills. Thus, TR4 still shows as a significant variable in the experimental school, but TR5 is the major variable in the control school. Thus, it seems that the efforts in the project (in the case of fifth graders, Fall, 1978, this would be instruction in third and fourth grades) seem to be having an impact.

When the prediction of Total Reading Fall 1977 scores for fifth grade students was made, TR2 was the best single indicator while TR5 was the second best indicator if IQ5 were not available. However, when available, IQ5 was the single best indicator and accounted for 50 percent of the variability in the scores. (If only TR2 was available, it accounted for 0.29 percent of the variability). The addition of TR2 to the previously mentioned IQ5 raised the value of R^2 to 0.65. The addition of TR5, TR3, and TR4 to the set of variables predicting Total Reading, Fall, 1977 without the IQ5 score accounted for 0.50 percent of the variability for the entire set.

TR 77 (Fall) = 0.064 IQ5 - 1.87 R^2 = 0.50

TR 77 (Fall) = 0.056 IQ5 + 0.38 TR2 - 2.19 R^2 = 0.65

Fall, 1979 (Experimental and Control)

In predicting TR 79 results from 1977, 1978 and TR4 (1976) results for Grade 6, the pattern shows that the end-of-year Grade 4 (Spring 1976) is the best predictor of success if the data are available. This result holds for both the Experimental and Control Groups. If post-test (end of year scores) are not available, then Total Reading, Fall (TRF) 1977, or the score from two years earlier, was the best predictor. These equations appear on the next page.

Experimental Group (Grade 4)

TR 79 (Fall) = 0.62 TR 77 (Fall) + 0.52 TR 78 (Fall) + 0.13 R^2 = 0.62

TR 79 (Fall) = 1.25 TR4P + 0.19 TR 78 (Fall) + 0.29 TR 77 (Fall) - 1.70 R^2 = 0.70

Control Group (Grade 4)

TR 79 (Fall) = 0.40 TR 77 (Fall) + 0.78 TR 78 (Fall) - 0.016 R^2 = 0.79

TR 79 (Fall) = 0.74 TR4P + 0.37 TR 78 (Fall) + 0.29 TR 77 (Fall) - 0.25 R^2 = 0.83

Regression Equation Using Pre-Intervention Data

In an attempt to determine if the intervention strategies of the project influence the predictive values of the equations, equations were built on pre-intervention data for grades 6, 5 and 4. For grade 6 the criterion year was TR Spring, 1978; for grades 5 and 4 the criterion was TR Spring, 1979. Note that prior to the interventions the Shelby County System tested pupils only in the Fall; during and after the project there were both Spring and Fall test data available (as shown in the prior section).

Experimental Group

When regression equations were computed for the TRS78 score for the Experimental Group, Grade 6, using data elements collected prior to the project, TR 4 was the variable contributing the largest amount to the R^2. As noted below, the value of R^2 was 0.74. The addition of TR 2, TR 3, and IQ 3 increased that value only 0.01. (TRS78 = Total Reading, Spring, 1978).

Equation	R^2
TRS78 = 1.60 TR4+1.88	0.74
TRS78 = 1.35 TR4+1.44	0.75
TRS78 = 1.49 TR4+0.79 TR2-0.19 TR3+1.24	0.75
TRS78 = 1.42 TR4+0.75 TR2-0.20 TR3+0.007 IQ3=0.86	0.75

If TR4 were not used, TR 2 was the best predictor. However, the R^2 was only 0.53. Using TR3 and IQ3 increased the value to 0.70.

Equation	R^2
TRS78 = 3.02 TR2+1.05	0.53
TRS78 = 1.86 TR2+0.046 IQ3-1.26	0.62
TRS78 = 1.67 TR2+0.042 IQ3+0.14-0.92	0.70

The TRS79 scores for Grade 5 were best predicted by TR3 and IQ3 when the pre-treatment variables were used. The value of R^2 was 0.47 for the two variables. It is interesting to note that TR4 was chosen as the third variable when TR3 and IQ3 were available. These equations follow.

Equation	R^2
TRS79 = 0.85 TR3+0.027 IQ3+0.33 TR4+0.44	0.45
TRS79 = 1.10 TR3+0.026 IQ3+0.42 TR4-0.97 TR2+1.44	0.46
TRS79 = 1.73 TR3+1.66	0.42
TRS79 = 1.27 TR3+0.038 IQ3-0.62	0.47

The best predictor of TRS78 for Grade 5 was TR4. The additions of IQ3, TR2, and TR3 were helpful but not over-powering. See the following equations.

Equation	R^2
TRS78 = 0.94 TR4+2.60	0.71
TRS78 = 0.70 TR4=0.045 IQ3-0.85	0.76
TRS78 = 0.43 TR4+0.048 IQ3=1.24 TR2-2.53	0.78
TRS78 = 0.51 TR4+0.056 IQ3=1.80 TR2-0.49 TR3-3.28	0.79

TRS79 was best predicted for Grade 4 by TR4 with TR3, TR2 and IQ3 of some value to the R^2. The best indicators of TRS78 was TR4 with TR2 and IQ3 of marginal assistance.

Equation	R^2
TRS79 = 1.27 TR4+1.54	0.51
TRS79 = 0.82 TR4+0.89 TR3+0.83	0.58
TRS79 = 0.88 TR4+0.99 TR3-0.57 TR2+1.33	0.58
TRS79 = 0.82 TR4+0.91 TR3+0.01 IQ3-0.49	0.58
TRS78 = 1.08 TR4+1.59	0.49
TRS78 = 0.81 TR4+0.91 TR2+0.020 IQ3-0.85	0.53

Control Group

For Grade 6 in the control group, IQ5 was the best predictor of TRS78. The R^2 value was 0.78.

Equation	R^2
TRS78 = 0.13 IQ5-5.87	0.78
TRS78 = 0.16 IQ5-0.25 TR6P-6.76	0.81

IQ3 and TR2 were the best predictors for TRS78 for Grade 5. The R^2 value was only 0.24. TRS79 scores showed IQ3 and TR2 to be the best predictors. The R^2 value was 0.83 to 0.87.

Equation	R^2
TRS78 = 0.038 IQ3+1.26	0.18
TRS78 = 0.037 IQ3+0.28 TR2+0.60	0.24
TRS79 = 0.15 IQ3-7.15	0.83
TRS79 = 0.12 IQ3+0.31 TR2-6.36	0.86
TRS79 = 0.12 IQ3=0.40 TR2-0.34 TR3-5.84	0.87

If both IQ3 and IQ5 were present, an R^2 value between 0.81 and 0.89 was found in predicting TRS79 for Grade 5.

Equation	R^2
TRS79 = 0.13 IQ3-6.02	0.81
TRS79 = 0.089 IQ3+0.061 IQ5-7.56	0.89

Grade 4 data showed the best prediction of TRS79 to be TR4, TR3, and TR2. If IQ3 were available, it was the second variable chosen. If not available, TR3 was the choice.

Equation	R^2
TRS79 = 4.83 TR2-2.0	0.74
TRS79 = 1.62 TR4-0.97 TR3+3.40	0.79
TRS79 = 1.15 TR4-1.55 TR3+3.39 TR2+0.77	0.89
TRS79 = 0.84 TR4+0.081 IQ3-4.14	0.85
TRS79 = 0.43 TR4+0.082 IQ3+1.98 TR2-6.27	0.89
TRS79 = 0.75 TR4+0.056 IQ3+3.02 TR2-1.10 TR3-3.80	0.93

TR2 and TR3 or TR2, TR4 and TR3 were the choices to predict TRS78. However, if IQ3 were available, the value of R^2 rose more quickly.

Equation	R^2
TRS78 = 5.19 TR2-3.46	0.88
TRS78 = 5.82 TR2-0.44 TR3-3.41	0.89
TRS78 = 3.55 TR2+0.51 TR4-2.27	0.92
TRS78 = 4.19 TR2+0.61 TR4-0.66 TR3-1.97	0.94
TRS78 = 4.11 TR2-0.061 IQ3-7.29	0.97

Discussion

The experimental group consistently relies on TR4 as the best single predictor, and the control group consistently provides higher R^2 values. These statements are true whether pre-treatment data are used or whether data are used from the treatment period.

In general, regression equations are better (i.e., they are able to predict more of the variance) in the experimental school after the project began and when data generated from the project were used; the opposite is true in the control school. In the experimental school, the ability of TR4 scores to predict future scores increases during the project and TR4 stays about the same in predictive value in the control school using pre-project and post-project data. In the control school, TR4 is seldom the most important predictive variable. This lends credence to the interim report findings that, in the experimental school, it appears that something important occurs at grade 4. There are other indicators that this is true.

Although other variables than IQ and MAT scores were available for regressions, data files were not complete enough to encourage we of other variables in the analyses. Appendices B and C contain raw data by sex and/or race variables.

ANALYSIS OF COVARIANCE COMPARISONS

Selected data analyses for the Right-to-Read Project included a series of F tests computed using an Analyses of Covariance between selected Total Reading (TR) Scores for various grade/year comparisons between the Control and Experimental Groups. Generally, these comparisons used score/base year, such as TR, Fall 1979 and compared these results with each previous Fall TR Test results for both groups. The results of these comparisons appear in Tables 5 and 6 . Adjusted mean values are presented as well as F values and the associated probability levels.

Covariance: Fall Data

As may be seen from the data, adjusted scores produce no significant F values for Grade 4 comparisons. With Grade 5 results, significant values of F were obtained for the Fall 1978 comparison with Fall 1977, Fall 1976, and Fall 1973. Similiarly, significant F's were found between Fall 1977 data and Fall 1973 results.

Results show that apparently some major gains occured in Grade 4 (since the fifth grade Fall score would be the entering fifth grade -- or after fourth grade -- score.) This pattern of gain shows significance in four of nine comparisons at or beyond .05. (Table 6) No significant results were shown in Grade 4 on 12 comparisons (Table 5).

Covariance: Spring Data (Grade 4): Table 7

Total Reading Spring 1979 data compared with Total Reading Spring 1978 data showed no significant F value for Grade 4. The adjusted mean score for the Control group was, however, 0.19 years higher. Similiar results were found when Total Reading Spring 1979 data were compared with Total Reading Fall 1977 data.

Results for the comparisons of Total Reading Spring 1979 with Total Reading Spring 1977 produced a significant F value of 9.96. This was significant at the .003 level. The adjusted mean score favored the Control group by a value of 0.60 years.

Comparisons between Total Reading Spring 1978 and Total Reading Spring 1977 also showed a significant F value at the 0.04 level. A comparison between Total Reading Spring, 1978 and Total Reading Fall 1977 was not significant.

Covariance: Spring Data (Grade 5)

Comparisons for Grade 5 between Total Reading Spring 1979 and Total Reading Spring 1978 and Total Reading Fall 1977 showed significant F values of 0.024 and 0.013. In both cases, the adjusted mean scores favored the Experimental Group. No other 5th grade comparisons were significant.

Discussion

Inspection of Table 7 shows that, although only two of five comparisons were significant, all adjusted means favor the experimental school for grade 5 data; all adjusted means favor the control school for grade 4 data (except one of five, where the means were 4.44 and 4.43, or virtually identical). Once again, data continue to suggest that grade 4 seems to be a crucial point, and that the special emphasis project seems to make most gains at grade 4.

TABLE 5

SUMMARY RESULTS FOR ANALYSIS OF COVARIANCE COMPARISONS OF TOTAL READING SCORES OVER SELECTED TEST PERIODS FOR THE SHELBY COUNTY RIGHT-TO-READ PROJECT, GRADE 4 (FALL DATA)

	Experimental Mean (Adjusted)	Control Mean (Adjusted)	F	Prob.
Total Reading Fall 1979 with:				
(a) Total Reading, Fall, 1978	4.61	4.71	0.02	0.88
(b) " " Fall, 1977	4.52	4.73	0.00	0.99
(c) " " Fall, 1976	4.46	4.71	2.41	0.13
(d) " " Fall, 1975	4.35	4.82	0.38	0.54
(e) " " Fall, 1974	4.23	4.92	2.12	0.15
Total Reading Fall 1978 with:				
(a) Total Reading, Fall, 1977	4.40	4.37	0.71	0.49
(b) " " Fall, 1976	4.24	4.27	0.43	0.51
(c) " " Fall, 1975	4.26	4.19	0.15	0.70
(d) " " Fall, 1974	4.30	4.17	0.05	0.95
Total Reading Fall, 1977 with:				
(a) Total Reading, Fall, 1976	3.20	3.47	0.86	0.36
(b) " " Fall, 1975	3.51	3.41	0.55	0.46
(c) " " Fall, 1974	3.44	3.48	0.72	0.79

TABLE 6

SUMMARY RESULTS FOR ANALYSIS OF COVARIANCE COMPARISONS OF TOTAL READING SCORES OVER SELECTED TEST PERIODS FOR THE SHELBY COUNTY RIGHT-TO-READ PROJECT, GRADE 5 (FALL DATA)

	Experimental Mean (Adjusted)	Control Mean (Adjusted)	F	Prob.
Total Reading Fall 1978 with:				
(a) Total Reading, Fall 1977	5.10	4.28	9.63	0.00*
(b) " " Fall 1976	4.88	4.43	4.98	0.03*
(c) " " Fall 1975	4.95	3.97	1.38	0.24
(d) " " Fall 1974	4.93	4.00	2.08	0.16
(e) " " Fall 1973	4.88	4.21	25.50	0.00*
Total Reading Fall 1977 with:				
(a) Total Reading, Fall 1976	4.11	4.11	0.56	0.46
(b) " " Fall 1975	4.09	3.60	0.68	0.42
(c) " " Fall 1974	4.14	3.56	0.18	0.68
(d) " " Fall 1973	4.01	3.78	6.64	0.01*

*Significant at or above .05.

TABLE 7

SUMMARY RESULTS FOR ANCOVA COMPARISONS OF
TOTAL READING SCORES OVER SELECTED TEST PERIODS
FOR SHELBY COUNTY RIGHT-TO-READ PROJECT
GRADES 4 AND 5 (SPRING DATA)

	Experimental Mean (Adjusted)	Control Mean (Adjusted)	F	Prob.
Grade 4				
Total Reading Spring 1979 with:				
(a) Total Reading Spring 1978	5.05	5.24	0.43	0.517
(b) " " Fall 1977	5.05	5.23	0.073	0.788
(c) " " Spring 1977	4.90	5.50	9.96	0.003*
Total Reading Spring 1978 with:				
(a) Total Reading Fall 1977	4.44	4.43	0.214	0.645
(b) " " Spring 1977	4.47	4.58	4.397	0.040*
Grade 5				
Total Reading Spring 1979 with:				
(a) Total Reading Spring 1978	6.43	5.01	5.41	0.024*
(b) " " Fall 1977	6.35	5.00	6.63	0.013*
(c) " " Spring 1977	5.97	5.11	2.06	0.156
Total Reading Spring 1978 with:				
(a) Total Reading Fall 1977	5.16	5.12	0.02	0.968
(b) " " Spring 1977	5.15	5.09	0.56	0.456

*Significant at or above .05.

ANALYSES OF TEACHER AND PUPIL INTERACTION*

An additional component of the evaluation was a series of analyses of teacher and pupil classroom interactions. In the Spring, 1977, video tapes were made of each teacher in the experimental school conducting a reading instruction session. The video tapes were approximately 15 minutes in length. A second set of video tapes (approximately 15 minutes in length) was made in the Spring, 1979 of each teacher teaching reading. Analyses were then made of the 5 teachers who were still teaching the same grade level in 1979 as they were during the first video taping. All teachers were females; three were black and two were white.

Analyses were conducted using two structured observation systems; 1) the IDER system for simultaneously measuring teacher verbal and nonverbal interactions, and 2) the PIT system for analyzing teacher Personal, Institutional, and Task behaviors. The PIT also uses a 4th category entitled "Mixed," and each behavior is either defined as an individual event or a group-related event.

The Pre and Post tapes of teacher behaviors provided approximately 3000 IDER behaviors for analysis, and 370 PIT behaviors. The PIT system uses a simple check-mark system since categorization is relatively uncomplicated. The IDER is derived from the Flanders System of Interaction Analysis (for verbal behaviors) and includes two nonverbal categories (Encouraging or Restricting) for each verbal category. A sample of the IDER System appears in Figures 1A and 1B.

Basic data from the analyses of the PIT and IDER systems are provided on the following pages. In summary, there were not striking changes in teacher behavior; identified changes were in what are considered a positive direction.

---

*Detail of these analyses appears in Crawford, Doris Scott, Analyses of Verbal and Nonverbal Behaviors of Teachers Teaching Reading to Determine if Change Occurred During an Experimental Reading Project, University of Tennessee, Knoxville, Unpublished Doctoral Dissertation. August, 1980.

	VERBAL	NONVERBAL	
		ENCOURAGING	RESTRICTING
TEACHER TALK — Indirect Influence	1. ACCEPTS FEELINGS	1.	1.
	2. PRAISES OR ENCOURAGES	2. CONGRUENT: nonverbal cues reinand further clarify the credibility of a verbal message.	2. INCONGRUENT: contradiction occurs between verbal and nonverbal cues.
	3. ACCEPTS OR USES IDEAS OF STUDENTS	3. IMPLEMENTATION: occurs when the teacher actually uses student's idea either by discussing it, reflecting on it or turning it to the class for consideration.	3. PERFUNCTORY USE: occurs when the teacher merely recognizes student's idea by automatically repeating or restating it.
	4. ASKS QUESTIONS	4. PERSONAL: face-to-face confrontation.	4. IMPERSONAL: avoidance of verbal interchange in which mutual glances are exchanged.
TEACHER TALK — Direct Influence	5. LECTURES	5. RESPONSIVE: change in teacher's pace or direction of talk in response to student behavior, i.e., bored, disinterested, inattentive.	5. UNRESPONSIVE: inability or unwillingness to alter the pace or direction of lecture disregarding pupil cues.
	6. GIVES DIRECTIONS	6. INVOLVE: students are involved in clarification or maintenance of learning tasks.	6. DISMISS: teacher dismisses or controls student behavior.
	7. CRITICIZES OR JUSTIFIES AUTHORITY	7. FIRM: criticisms which evaluate a situation cleanly and crisply and clarify expectations for the situation.	7. HARSH: criticisms which are hostile, severe and often denote aggressive or defensive behavior.
STUDENT TALK	8. STUDENT TALK (RESPONSE) 9. STUDENT TALK (INITIATION)	8 & 9. RECEPTIVE: involves attitude of listening and interest, facial involvement and eye contact.	8 & 9. INATTENTIVE: involves a lack of attending eye contact and teacher travel or movement.
	10. SILENCE OR CONFUSION	10. COMFORT: silences characterized by times of reflection, thought or work.	10. DISTRESS: instances of embarrassment or tension-filled moments, usually reflecting disorganization and disorientation.

1A Summary of Categories for Interaction Analysis Using Nonverbal Categories: The IDER System of Verbal/Nonverbal Categorization.

1B

Categories	CATEGORIES 1	2	3	4	5	6	7	8	9	10	TOTAL
	E R	E R	E R	E R	E R	E R	E R	E R	E R	E R	E R
1. Accepts Student Feelings											
2. Praises or Encourages											
3. Accepts Student Ideas											
4. Asks Questions											
5. Lectures											
6. Gives Directions											
7. Criticizes or Justifies Authority											
8. Student Talk—Teacher-Initiated											
9. Student-Talk—Student-Initiated											
10. Silence or Confusion											
TOTAL											

Figures 1A and 1B

A summary of IDER categories with explanations and a sample of the matrix used for collecting basic data in the IDER system.

BEST AVAILABLE COPY

PIT Analyses (See Table 8)

Analyses of the PIT data showed that teachers spent most of their time "on task," that is, they concentrated totally on teaching reading during the segments of videotaped behavior. In the post-tape session teachers were more capable of individualizing their instruction toward single pupils, while during the pre-tape session they devoted more time and effort to group interactions.

The fact that most teacher behaviors in both pre and post analyses were considered "time on task" is accounted for because the video tapes were made of specific reading instruction interactions, and not of general classroom interactions. The change to longer individual interactions shows that the teachers learned to focus their attentions on each child and the problems of the individual child, and became more able to respond to each child's concerns.

On the pre-tapes the average duration (in seconds) of a teacher's individual event was 92.8 seconds; on the post-tapes this was 114.0 seconds. In similar fashion, teachers spent more average time on group events on the post-session, 61.1 seconds to 57.9 seconds. Thus, although there were more teacher behaviors noted in the pre-tapes than in the post-tapes (184 to 166) the pace of the instruction was slower in the post-tapes and more time was given to each event. This suggest an attempt to answer issues thoroughly and obtain closure, rather than moving from point to point quickly.

The time-on-task results (there were 350 tasks events, and only 19 other events) of the PIT analysis show that only about 5 percent of all behaviors were other than time-on-task (this was supported by IDER analyses where only 9 percent of all behaviors were categorized as "silence or confusion," and many behaviors so categorized were silent reading--a form of task behavior). This is an unusually high level of time-on-task and may partially account for gains shown in reading scores. However, recall that the intense time-on-task effort was over a relatively short time (about 15 minutes) and on a structured task.

TABLE 8

NUMBER AND DURATION OF TASK EVENTS OBSERVED
USING PIT: A SUMMARY OF FINDINGS

Teacher	Number of Task Events						Average Duration (seconds)				Time on Tasks (seconds)			
	Pre			Post			Pre		Post		Pre		Post	
	Gp	Ind	Tot	Gp	Ind	Tot	Group	Ind.	Group	Ind.	Group	Ind.	Group	Ind.
1	09	46	55	03	06	09	58.30	10.10	172.0	38.50	525	465	516	231
2	08	17	25	10	12	22	48.30	31.40	41.10	30.20	387	534	411	363
3	06	10	16	11	41	52	105.5	20.70	30.50	15.40	633	207	336	642
4	06	47	53	16	29	45	48.00	14.00	39.90	14.80	288	657	639	429
5	11	24	35	11	27	38	29.40	16.60	21.[illegible]	15.10	324	399	240	408
TOT	40	144	184	51	115	166	289.5	92.8	305.3	114.0	2157	2262	2142	2073
AVE	8	28.8	36.8	10.2	23	33.2	57.9	18.6	61.1	22.8	431.4	452.4	428.4	414.6

87

IDER Analyses (Tables 9 and 10)

Analyses of IDER data show little change, but the changes were in a positive direction. For example, teachers were more encouraging on the post tape than on the pre tape. Teachers on the post tape made better use of the intense, personal interactions indicated by the revised i/d ratio.

For the five teachers in the study, there were 1575 behaviors recorded on the pre tapes, and 1442 behaviors recorded on the post tapes. After using appropriate procedures to achieve inter-rater reliability at or above .80 between and among the principal investigator and at least two other raters, and achieving inter-rater reliability on at least two separate ratings of the same tape of .80 or better by the principal investigator, teacher behaviors were classified according to the IDER system. This system provides a numerical procedure for analyzing verbal and nonverbal behaviors simultaneously, and allows the researcher to compute three ratios: E/R, I/D, and i/d. These ratios were computed for the pre and the post tapes, and comparisons of these ratios allowed some conclusions to be drawn about the study. The E/R ratio is the ratio of teacher Encouraging to Restricting nonverbal cues. The I/D ratio is the ratio of teacher Indirect to Direct verbal cues. The revised I/D (or i/d) is a ratio of verbal communication cues that shows intense and personal interaction by removing two relatively neutral categories (asking questions and giving directions) from the I/D computation (See Figure 1A).

As shown in the following tables, on the pre tapes there were 1559 Encouraging and only 16 Restricting behaviors recorded. There were 518 Indirect verbal behaviors and 330 Direct verbal behaviors. The revised indirect and direct categories show 149 and 273 behaviors respectively.

On the post tapes there were 1439 Encouraging and only 3 Restricting nonverbal behaviors. There were 480 Indirect and 229 Direct verbal behaviors. There were 165 revised indirect and 178 revised direct behaviors, for a total of 1442 behaviors for the post analysis.

Table 9

COMPOSITE IDER RATIO COMPUTATIONS*

	PRETAPES			POSTTAPES		
Variable Categories	Total Behaviors	Percent	Ratios	Total Behaviors	Percent	Ratios
Encouraging (E) 1-10	1559	98.98	E/R= 97.44	1439	99.79	E/R= 479.0
Restricting (R) 1-10	16	1.02		3	.21	
Indirect (I) 1-4	518	32.9	I/D= 1.57	480	33.29	I/D= 2.10
Direct (D) 5-7	330	20.95		229	15.88	
Revised Indirect (i) 1-3	149	9.46	i/d= .55	165	11.44	i/d= .93
Revised Direct (d) 6-7	273	17.33		178	12.34	
Student Talk 8-9	590	37.46		593	41.12	
Silenced Confusion 10	137	8.70		140	9.71	
TOTAL	1575	100		1442	100	

*Behaviors for 5 Teachers: 2 Black and 3 White Females Teaching Grades 2-5 in 1977(Pre) and again in 1979(Post).

TABLE 10

FREQUENCY AND PERCENT OF TEACHER BEHAVIORS (E) AND (R)
BY CATEGORIES OF IDER: 1977 and 1979

	TEACHER TALK							STUDENT TALK		SILENCE	TOTAL
1977	Indirect Cues				Direct Cues						
	1	2	3	4	5	6	7	8	9	10	1-10
Encouraging	--	90	59	365	56	255	7	576	14	137	1559
Restricting	--	--	--	4	1	8	3	---	--	---	16
Total	--	90	59	369	57	263	10	576	14	137	1575
Percent	--	5.71	3.75	23.43	3.62	16.70	.63	36.57	.89	8.70	100
1979											
Encouraging	--	36	129	315	62	156	8	577	16	140	1439
Restricting	--	--	---	---	--	2	1	---	--	---	3
Total	--	36	129	315	62	158	9	577	16	140	1442
Percent	--	2.50	8.95	21.84	4.30	10.96	.62	40.01	1.11	9.71	100
Total 1977	32.9%				20.9%			37.5%		8/7%	100%
Total 1979	33.3%				15.9%			41.1%		9.7%	100%

Ratios

1977 E/R = 97.44 I/D = 1.57 i/d = .55

1979 E/R = 479.0 I/D = 2.10 i/d = .93

Categories 1-10 are described in Figures IA and IB, page

Computations of ratios for the pre and post analyses show the following:

	E/R	I/D	i/d
Pre tape (1977)	97.44	1.57	.55
Post tape (1979)	479.60	2.10	.93

The E/R ratio increased from 97.44 to 479.60, showing an increase in positive and facilitative classroom climate in the second analysis. There was an increase in the I/D ratio of 1.57 to 2.10, showing that the teachers allowed more student talk in the post analysis than they did in the pre analysis. There was also an increase in the revised I/D ratio, from .55 to .93. All of these shifts are in a "positive" direction--e.g., they show that that the teachers were more facilitative and open in 1979 than in 1977.

The overall changes in teaching style (as shown by the verbal interactions) are consistent and important. The ratios show that the teacher verbal and nonverbal behaviors were consistent and congruent; they both were open and positive and all changes were toward a more open and positive classroom. These comparisons are supported by the PIT analyses, where in the post analyses there were fewer total classroom communication events, but both the group and individual events were of longer duration, showing that the teachers were not moving rapidly from point to point, but were working more thoroughly to get closure and be sure pupils know what was being presented. A more detailed analysis of the IDER data provides additional insights into the classroom interaction changes.

Table 10 provides an analysis of teacher behaviors (pre and post) by each category of IDER and also aggregates the percents of behaviors by major headings: Teacher Talk (Indirect and Direct), Student Talk, and Silence/ Confusion. Major pre/post changes are the reduction from 20.9 to 15.9 percent in teacher direct communication cues and the corresponding increase from 37.5 to 41.1 percent in student talk. These changes show that by 1979 the teachers

were letting pupils respond more and that teachers were being less direct in their classroom verbal behaviors. Analyses of specific categories of IDER show where these changes occurred and just what the effects were. The important changes in individual IDER categories seem to be: (Recall that there were 1575 and 1442 total behaviors in the pre and post analyses respectively. Chi-square analyses for the significance of these changes appear in Appendix D).

1. Decrease in Restricting behaviors from 16 to 3	$X^2 = 7.65$	(.01)
2. Decrease in Indirect (IDER 1-8) from 518 to 480	$X^2 = .54$	(NS)
3. Decrease in Direct (IDER 5-7) from 330 to 229	$X^2 = 12.72$	(.001)
4. Increase in indirect (IDER 1-3) from 149 to 165	$X^2 = 3.20$	(NS)
5. Decrease in direct (IDER 6-7) from 273 to 178	$X^2 = 15.07$	(.001)
6. Change in Student Talk (8-9) from 590 to 593	$X^2 = 4.38$	(.05)

Although there were no significant (.05) differences in the Indirect (categories 1-4) or the indirect (categories 1-3), the internal shifts in these categories are significant and tell an important story of the change in teaching styles from 1977 to 1979: (1). There was less use of praise (5.7 to 2.5 percent), but more acceptance and use of student ideas (3.6 to 9 percent); (2). There was less asking of questions (23.4 to 21.8 percent). These changes in teacher Indirect and indirect behaviors were accompanied by two other important changes from 1977 to 1979: one in teacher Direct behavior and one in student talk.

1. Teachers gave less directions (18.7 to 11 percent) in 1979.
2. Students responded more to teachers (36.6 to 40. percent) in 1979.

Teacher Behavior: Summary

In summary, analyses of PIT and IDER data show that there were important (and some statistically significant) shifts in teacher behaviors from 1977 to 1979. These changes were all in what could be described as positive, facilitative or "good" in direction. Teachers were able to allow students to participate more actively. Teachers were able to give fewer

directions (a Direct behavior) and to build much more on student ideas and participation (an Indirect behavior). Teachers slowed the pace of the lessons somewhat and spent more time on each communication event. The gains found in pupil reading scores seem closely related to improvement in teaching behaviors as these teachers worked hard to focus more emphasis on the teaching of reading. All measures used in this evaluation support each other and show that the project was successful.

SUMMARY

This internal evaluation was undertaken to support the National Evaluation of Special Emphasis Reading Projects. The evaluation used the school district's regular testing program data rather than employing a separate pre/post testing situation. There were four approaches to the evaluation: 1) a compilation and analysis of aggregated data on a year-by-year basis, 2) a regression model using historical data from 1972-1976 and data collected over the project duration (1976-1979), 3) a pre/post, experimental/control model using data from the experimental and control schools for analysis by Analysis of Covariance (ANCOVA) techniques, and 4) an analysis of pre and post teaching behaviors of the five teachers who were teaching reading to the same grade levels in Spring, 1977 as in Spring, 1979.

Overall, the evaluation showed that there were gains, and that these gains were more than could be expected by chance. The number and percent of youngsters reading below grade level decreased; the project school average IQ (group tests) increased about one standard deviation; teacher behavior became more facilitative and positive.

Regression and ANCOVA suggested that "something" was happening at about fourth grade with this group of low-reading, low SES, rural youngsters. These indicators suggested that if a district wanted to spend its limited resources on special reading activities for this group, the resources would probably best be spent at the fourth grade.

The Special Emphasis effort was not a "pull-out" program so common in other compensatory efforts (e.g. ESEA). The results of the Special Emphasis project showed major positive gains where the pull-out programs had failed, although they had been in use for over 10 years. The conclusion seems unavoidable: the use of specialists working with teachers--in their own rooms with their own pupils--seems superior to the traditional pull-out compensatory effort and should be used where possible.

APPENDIX A

READING TEST DATA (METROPOLITAN) FOR PROJECT SCHOOL GRADES 2-8

1974 - 1979

PROJECT SCHOOL

		GRADE							
YEAR		2	3	4	5	6	7	8	TOTAL
1974	a	71	52	74	75	84	86	76	75%
	b	47	35	57	49	81	61	48	378
	c	66	67	77	65	97	71	63	506
1975	a	64	59	82	72	76	87	73	74%
	b	38	37	54	59	54	73	41	356
	c	59	64	66	82	71	84	56	482
1976	a	55	49	66	77	69	73	84	69%
	b	28	25	39	48	59	41	74	314
	c	51	51	59	62	86	56	88	453
1977	a	50	20	76	72	83	67	56	61%
	b	26	12	34	43	55	49	32	251
	c	52	59	45	60	66	73	57	412
1978	a	17	8	52	61	66	81	58	51%
	b	8	4	32	25	35	55	43	202
	c	46	52	61	41	53	68	74	395
1979	a	-	6	71	55	77	64	71	58%
	b	-	3	43	34	36	38	47	201
	c	-	50	61	62	47	59	66	345
MEAN	a	54	34	70	69	76	77	71	66%
	b	147	116	259	258	320	317	285	1,702
	c	274	343	369	372	420	411	404	2,593

a. Percent 1 year or more below grade level
b. Number 1 year or more below grade level
c. Number students enrolled in grade or taking tests

1978 Enrollment: K (48), grade 1 (49), Total (499), ADA (472).

APPENDIX A (continued)

READING TEST DATA (METROPOLITAN) FOR
CONTROL SCHOOL GRADES 2-8

1974 - 1979

CONTROL SCHOOL

		GRADE							
YEAR		2	3	4	5	6	7	8	TOTAL
1974	a	78	73	76	66	70	73	62	71%
	b	25	24	28	29	33	29	23	191
	c	32	33	37	44	47	40	37	270
1975	a	67	42	92	72	71	73	76	71%
	b	18	14	33	54	36	37	28	200
	c	27	33	36	47	51	51	57	282
1976	a	74	37	66	71	69	71	67	66%
	b	32	11	25	24	27	35	37	191
	c	43	30	38	34	39	49	55	288
1977	a	40	20	52	62	74	75	72	56%
	b	14	8	13	16	26	24	34	135
	c	35	40	25	26	35	32	47	240
1978	a	16	12	50	56	63	76	62	49%
	b	4	4	20	22	20	28	18	116
	c	25	33	40	39	32	37	29	235
1979	a	-	9	48	57	54	79	53	53%
	b	-	3	15	21	19	26	17	101
	c	-	34	31	37	35	53	32	192
MEAN	a	57	32	65	64	67	68	66	62%
	b	93	64	134	146	161	179	157	934
	c	162	203	207	227	239	262	237	1,507

a. Percent 1 year or more below grade level
b. Number 1 year or more below grade level
c. Number students enrolled in grade or taking tests

1978 Enrollment: K (23), grade 1 (43), Total' (291), ADA (277)

APPENDIX B
Historical and Comulative Test-Score Data
Average Grade Equivalent for Shelby County Pupils
Total Reading by Grade by Sex by School

(shows grade level where treatment started)		Project Start ←	Control Group				Experimental Group			
			Male		Female		Male		Female	
			$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N
(Grade 1)										
Gr 1	Spring 77		1.57	12	1.63	14	1.60	29	1.55	19
2	Fall 77		1.77	11	1.76	9	1.72	26	1.75	15
2	Spring 78		2.36	11	2.36	9	2.46	27	2.71	18
3	Fall 78		2.67	15	2.66	18	2.70	28	2.86	24
3	Spring 79		3.50	13	3.76	17	3.32	28	3.80	22
4	Fall 79		3.29	15	3.21	16	2.86	33	3.24	28
(Grade 2)										
Gr 2	Fall 76	←	1.50	17	1.95	14	1.69	20	1.78	26
2	Spring 77		2.44	20	2.56	16	2.51	25	2.62	26
3	Fall 77		2.24	13	2.75	14	2.51	21	2.69	24
3	Spring 78		2.89	14	3.08	12	3.01	19	3.23	23
4	Fall 78		3.30	19	3.70	21	2.93	28	3.73	32
4	Spring 79		4.42	17	4.80	18	3.86	27	4.65	31
5	Fall 79		4.33	19	4.26	18	3.97	32	4.46	30
(Grade 3)										
Gr 2	Fall 75		1.63	11	1.81	7	1.56	25	1.61	16
3	Fall 76	←	2.03	14	2.59	8	2.35	28	2.27	19
3	Spring 77		4.66	16	4.40	8	3.16	27	3.00	20
4	Fall 77		2.88	14	3.21	7	2.61	26	2.81	13
4	Spring 78		4.04	14	4.16	7	3.18	26	3.63	15
5	Fall 78		4.63	23	3.96	18	3.66	28	3.85	14
5	Spring 79		5.67	23	4.56	15	4.34	27	4.18	12
6	Fall 79		5.81	23	4.63	12	4.47	30	4.92	18
(Grade 4)										
Gr 2	Fall 74		1.30	3	1.81	13	1.57	19	1.52	20
3	Fall 75		1.70	4	2.45	17	2.20	24	2.24	20
4	Fall 76	←	2.31	11	2.76	21	3.01	27	2.57	25
4	Spring 77		3.45	12	3.58	20	3.93	27	3.52	26
5	Fall 77		2.98	9	3.52	16	3.66	25	3.38	22
5	Spring 78		4.33	10	4.48	15	4.82	25	4.19	22
6	Fall 78		4.17	15	5.08	17	5.62	23	4.60	30
6	Spring 79		4.98	16	5.79	16	6.60	22	5.02	28
7	Fall 79		4.00	15	5.62	18	5.77	20	4.62	22
(Grade 5)										
Gr 2	Fall 73		2.80	8	3.17	9	1.79	11	1.69	16
3	Fall 74		1.94	8	2.19	9	2.33	16	2.17	16
4	Fall 75		2.03	11	2.48	9	2.92	18	2.55	15
5	Fall 76	←	3.44	17	3.78	12	3.66	22	3.11	17
5	Spring 77		4.34	17	4.39	14	4.32	25	3.93	19
6	Fall 77		5.36	17	4.11	12	4.44	26	3.64	18
6	Spring 78		5.51	13	4.10	6	5.59	21	4.61	16
7	Fall 78		4.68	16	4.70	15	5.30	29	4.36	30
7	Spring 79		5.87	14	5.23	13	6.68	28	5.30	31

		Control Group				Experimental Group			
	Project Start	Male		Female		Male		Female	
		$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N
(Grade 6)									
Gr 2	Fall 72	1.43	3	1.42	4	1.73	15	1.76	21
3	Fall 73	2.06	5	2.04	11	2.18	17	2.57	23
4	Fall 74	2.15	4	2.41	10	2.58	17	2.64	23
5	Fall 75	3.32	6	2.94	14	3.73	21	3.71	30
— 6	Fall 76	4.14	8	4.29	18	3.76	33	4.20	33
6	Spring 77	5.69	10	4.84	20	5.21	31	5.60	37
7	Fall 77	5.90	7	3.66	11	4.66	25	5.36	28
7	Spring 78	6.11	7	4.94	10	5.61	26	5.89	28

Groups Entering After Project Start

1977-78

		M	F	M	F
Gr 3	Fall 79	2.86 (15)	3.51 (19)	3.04 (24)	3.24 (20)
2	Spring 79	3.16 (10)	3.75 (12)	3.24 (24)	3.36 (20)
2	Fall 78	2.15 (12)	2.03 (13)	2.07 (24)	2.41 (22)
1	Spring 78	2.07 (22)	1.93 (18)	1.78 (24)	2.05 (30)

1978-79

		M	F	M	F
Gr 2	Spring 79	3.27 (17)	3.36 (6)	3.34 (20)	3.40 (23)
	Fall 78	2.11 (18)	2.47 (7)	1.98 (22)	2.60 (24)

APPENDIX C

Average Grade Equivalent for Shelby County Pupils: Total Reading
by Grade, by Sex, by Race, by School
Historical and Comulative Test-Score Data

(Grade level where treatment started and year)	Date Start	Control								Experimental							
		Male				Female				Male				Female			
		White		Black		White		Black		White		Black		White		Black	
		$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N
(Grade 1)																	
Gr 1	Spring 77	1.54	5	1.59	7	1.61	10	1.68	4	1.92	5	1.53	24	1.60	5	1.53	14
2	Fall 77	1.72	5	1.82	6	1.71	7	1.90	2	2.12	5	1.62	21	1.87	3	1.72	12
2	Spring 78	2.32	5	2.40	6	2.47	6	2.13	3	3.32	6	2.21	21	2.54	5	2.77	13
3	Fall 78	2.75	8	2.67	6	2.69	9	2.63	6	3.78	6	2.40	22	3.93	4	2.65	20
3	Spring 79	3.48	6	3.50	7	3.77	9	3.50	6	4.15	6	3.10	22	5.38	4	3.44	18
4	Fall 79	3.38	9	3.17	6	3.35	11	2.90	5	3.52	9	2.62	24	4.55	6	2.88	22
(Grade 2)																	
Gr 2	Fall 76	1.60	6	1.44	11	2.50	6	1.54	8	2.30	4	1.54	16	2.28	8	1.56	18
2	Spring 77	2.71	9	2.21	11	3.02	8	2.09	8	3.17	9	2.14	16	3.34	7	2.36	19
3	Fall 77	2.22	5	2.25	8	3.04	8	2.37	6	3.13	8	2.13	13	3.54	8	2.27	16
3	Spring 78	3.48	4	2.65	10	3.66	7	2.28	5	3.41	7	2.78	12	4.15	8	2.74	15
4	Fall 78	3.57	9	2.77	9	4.00	11	3.13	7	3.83	8	2.57	20	5.64	12	2.60	20
4	Spring 79	4.58	8	3.60	8	5.23	11	4.07	7	5.14	7	3.40	20	6.84	12	3.26	19
5	Fall 79	5.04	9	3.69	10	4.70	12	3.37	6	4.65	11	3.62	21	6.17	12	3.32	18
(Grade 3)																	
Gr 2	Fall 75	1.72	6	1.52	5	2.13	3	1.58	4	1.80	5	1.50	20	1.84	5	1.51	11
3	Fall 76	2.35	6	1.79	8	2.62	4	2.55	4	3.26	7	2.05	21	2.88	6	1.98	13
3	Spring 77	6.06	9	2.86	7	4.22	4	4.58	4	4.52	6	2.77	21	4.15	6	2.51	14
4	Fall 77	3.86	7	1.90	7	3.47	3	3.02	4	3.62	5	2.37	21	4.55	4	2.18	11
4	Spring 78	5.10	7	2.99	7	3.97	3	4.30	4	3.40	6	3.11	20	5.63	4	2.91	11
5	Fall 78	5.17	11	3.54	7	3.93	6	3.86	8	4.24	5	3.53	23	5.00	4	3.40	10
5	Spring 79	6.20	11	4.61	7	4.86	5	4.71	8	5.32	5	4.12	22	5.33	3	3.80	9
6	Fall 79	6.64	14						9	4.71	8	4.38	22	5.84	9	4.00	9

C-1

		Control								Experimental							
		Male				Female				Male				Female			
		White		Black		White		Black		White		Black		White		Black	
		$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N
(Grade 4)																	
Gr 2	Fall 74	-	-	1.30	3	2.44	5	1.41	8	1.93	3	1.50	16	2.30	1	1.48	19
3	Fall 75	-	-	1.70	4	2.82	6	2.23	11	2.86	5	2.03	19	2.45	2	2.22	18
4	Fall 76	3.95	2	1.94	9	3.77	9	2.01	12	4.07	6	2.70	21	2.52	4	2.58	21
4	Spring 77	5.08	4	2.64	8	4.72	8	2.81	12	5.10	6	3.59	21	3.64	5	3.49	21
5	Fall 77	4.05	2	2.67	7	4.05	6	3.36	10	4.80	5	3.37	20	3.40	4	3.37	18
5	Spring 78	5.90	2	3.94	8	6.34	5	3.55	10	6.26	5	4.46	20	4.40	4	4.14	18
6	Fall 78	6.32	5	3.01	9	5.68	9	4.08	6	4.40	4	4.51	21	5.64	7	4.28	23
6	Spring 79	7.26	5	3.93	9	6.79	8	4.70	6	5.64	7	4.51	14	6.63	6	4.58	22
7	Fall 79	5.16	5	3.42	10	6.45	8	4.95	10	6.63	6	5.61	14	6.50	5	4.82	17
(Grade 5)																	
Gr 2	Fall 73	1.10	1	3.04	7	5.45	1	2.51	7	2.45	2	1.64	9	-	-	1.69	16
3	Fall 74	2.30	1	1.89	7	3.60	1	2.01	8	3.53	3	2.05	13	-	-	2.17	16
4	Fall 75	1.90	2	2.06	9	5.70	1	2.08	8	4.38	5	2.35	13	-	-	2.55	15
5	Fall 76	5.37	3	3.03	14	5.27	3	3.29	9	5.25	6	3.06	16	-	-	3.11	17
5	Spring 77	5.02	5	3.59	14	6.57	3	3.79	11	5.89	7	3.72	18	5.00	1	3.87	18
6	Fall 77	5.54	5	3.83	12	5.93	3	3.50	9	5.88	8	3.80	18	4.50	1	3.59	17
6	Spring 78	7.08	5	4.64	12	6.13	3	4.32	9	7.60	6	4.78	15	4.50	1	4.62	15
7	Fall 78	5.72	6	4.13	10	6.93	3	4.40	10	6.55	11	4.54	18	2.40	2	4.36	30
7	Spring 79	6.06	5	5.77	9	9.90	1	5.09	10	7.74	10	6.08	18	4.20	2	5.33	30
(Grade 6)																	
Gr 2	Fall 72	-	-	1.43	3	1.55	2	1.30	2	1.62	5	1.78	10	1.97	3	1.72	18
3	Fall 73	-	-	2.06	5	2.30	4	1.90	7	2.45	8	1.93	9	4.53	3	2.28	20
4	Fall 74	-	-	2.15	4	2.30	3	2.46	7	2.87	7	2.38	10	3.68	4	2.43	19
5	Fall 75	-	-	3.32	6	2.92	4	2.94	10	4.08	11	3.34	10	5.03	7	3.31	23
6	Fall 76	-	-	4.14	8	5.06	7	3.78	11	4.03	15	3.53	18	5.66	9	3.66	24
6	Spring 77	7.45	2	5.25	8	5.59	9	4.24	11	5.74	14	4.77	17	6.33	10	5.12	27
7	Fall 77	7.80	1	5.58	6	4.22	5	3.18	6	5.16	11	4.28	14	6.44	8	4.94	20
7	Spring 78	9.60	1	5.50	5	5.80	4	4.75	6	5.76	11	5.01	15	7.19	8	6.32	20

C-2

APPENDIX D

CHI-SQUARE ANALYSES

TABLE D-1

Chi-Square analysis of change in Teacher Restricting Behaviors toward students based on Pre and Post data

	Restricting Behaviors	Encouraging Behaviors
Pretapes	16	1559
Posttapes	3	1442

c.v., P = .05, 1df: $x^2 \geq 3.84$ [$x^2 = 7.65$] $p \geq .05$ (.01)

TABLE D-2

Chi-Square analysis of change in Teacher Indirect Behaviors toward students based on Pre and Post data

	Indirect Behaviors	All Other Behaviors
Pretapes	518	1057
Posttapes	480	962

c.v., P = .05, 1df: $x^2 \geq 3.84$ [$x^2 = .539^{NS}$]

TABLE D-3

Chi-Square analysis of change in Teacher Direct Behaviors toward students based on Pre and Post data

	Direct Behaviors	All Other Behaviors
Pretapes	330	1245
Posttapes	229	1213

c.v., P = .05, 1df: $x^2 \geq 3.84$ [$x^2 = 12.72$] $p \geq .05$ (.001)

TABLE D-4

Chi-square analysis of change in teachers indirect Behaviors toward students based on Pre and Post data

	indirect Behaviors	All Other Behaviors
Pretapes	149	1426
Posttapes	165	1277

c.v., P = .05, 1df: $x^2 \geq 3.84$ [$x^2 = 3.20^{NS}$]

TABLE D-5

Chi-square analysis of change in teachers direct Behaviors toward students based on Pre and Post data

	direct Behaviors	All Other Behaviors
Pretapes	273	1302
Posttapes	178	1264

c.v., P = .05, 1df: $x^2 \geq 3.84$ [$x^2 = 15.07$] $p \geq .05$ (.001)

TABLE D-6

Chi-square analysis of change in Student Talk based on Pre and Post data

	Student Talk	All Other Behaviors
Pretapes	590	985
Posttapes	593	849

c.v., P = .05, 1df: $x^2 \geq 3.84$ [$x^2 = 4.38$] $p \geq .05$

FINAL EVALUATION REPORT

SHELBY COUNTY (TN) SPECIAL EMPHASIS RIGHT-TO-READ PROJECT
(FALL, 1976-FALL, 1979)
Work reported herein was done in contract with:

Shelby County, Tennessee, Public Schools
160 S. Hollywood
Memphis, TN 38112
Mr. Ward L. Harvey, Superintendent

Volume I: Basic Evaluation Report and
Appendixes
II: Executive Summary

Project Director: Dr. Harriet B. Crump, Shelby County Schools
Director of Elementary and Secondary Education
160 S. Hollywood, Memphis, TN 38112

Compiled, Written and Edited by:
Dr. C. M. Achilles, Bureau of Educational Research and Services, College of Education, University of Tennessee
Dr. John Ray, Curriculum and Instruction, College of Education, University of Tennessee

with Assistance of:

Mrs. Oneida Martin, Curriculum and Instruction
Dr. Jean Smedley, Metro Nashville Schools
Dr. Doris Scott Crawford, Knoxville, TN

Volume II: Executive Summary

Bureau of Educational Research and Service
College of Education
University of Tennessee
Knoxville, TN 37916
1980

EXECUTIVE SUMMARY
Shelby County Schools Right-to-Read "Special Emphasis" Project
October 1976-September, 197?

Introduction and Context

From 1976 through Fall, 1979, the Shelby County Schools participated in a Right-to-Read Special Emphasis project. The experimental school was Barret's Chapel and the control school was Arlington. The schools qualified under the stringent requirements of the federal guidelines for several reasons, including that more than 50 percent of the pupils read one or more grades below grade level.

Although there was a National Evaluation across the seven Special Emphasis projects, Shelby County conducted its own internal evaluation using its own regular testing program as a base. Interim reports were presented each year.

Activities included: reading specialists, use of a structured reading system (DISTAR), a summer reading program, parental involvement, teacher in-service, free book distribution to youngsters, and other techniques to stress reading.

Procedures

This internal evaluation was undertaken to support the National Evaluation of Special Emphasis Reading Projects. The evaluation used the school district's regular testing program data rather than employing a separate pre/post testing situation. There were four approaches to the evaluation: 1) a compilation and analysis of aggregated data on a year-by-year basis, 2) a regression model using historical data from 1972-1976 and data collected over the project duration (1976-1979), 3) a pre/post, experimental/control model using data from the experimental and control schools for analysis by Analysis of Covariance (ANCOVA) techniques, and 4) an analysis of pre and post teaching behaviors of the five teachers who were teaching reading to the same grade levels in Spring, 1977 as in Spring, 1979.

Results

Key indicators suggest that this project was highly successful. First, a substantial increase (about 10 points) in the measured group IQ scores at grades 3, 5 and 7 at the experimental school occurred during the project. The percent of experimental school youngsters scoring above grade level increased from 4 (1975) to 12 (1979) and the percent scoring one or more grades below grade level in reading decreased (grades 3-6) from 72 to 53 percent and (grades 3-8) from 75 to 58 percent during the project duration.

Statistical procedures (regression analyses) suggest that major gains occurred at about grades 3 or 4 (more at 4) and although there were gains at both the project and control schools, gains favored the project school. The key predictors of student reading success in the control school have remained the IQ scores. Interestingly, at the experimental school, the predictors of reading success have become the Total Reading Scores obtained on 4th grade reading tests. This is surprising in light of the usual close relation between IQ and reading, and suggests strongly that some gains are occurring at the 4th grade which are extremely important to the development of pupil's reading abilities. Analyses of other types (ANCOVA) show gains at the fourth grade, and that the gains favor the project school. After reviewing the substantial data, there is an inevitable conclusion that the Special Emphasis Project was successful in terms of pupil gain.

A companion study of teacher behaviors has shown that there were increases in what would be considered appropriate, facilitative, or positive teacher behaviors in the teaching of reading over the three years of the project (these results are reported in a study by Crawford, and summarized in the final report). Basically, teachers increased their individual attention to pupils, and, although providing considerable structure in the classroom, the teachers were able to work in a rather indirect fashion with pupils (that is, they were able to encourage pupil interaction, use pupil ideas, encourage pupil questions.) Teachers gave less directions, asked more questions and stayed "on task."

A summer school program apparently decreased the decrement in learning (measured by standard testing) usually found between Spring and Fall testings of pupil reading ability. The summer school seemed to add to this project's success.

Summary

Overall, the evaluation showed that there were gains, and that these gains were more than could be expected by chance. The number and percent of youngsters reading below grade level decreased; the project school average IQ (group tests) increased about one standard deviation; teacher behavior became more facilitative and positive.

Regression and ANCOVA suggested that "something" was happening at about fourth grade with this group of low-reading, low SES, rural youngsters. These indicators suggested that if a district wanted to spend its limited resources on special reading activities for this group, the resources would probably best be spent at the fourth grade.

The Special Emphasis effort was not a "pull-out" program so common in other compensatory efforts (e.g. ESEA). The results of the Special Emphasis project showed major positive gains where the pull-out programs had failed, although they had been in use for over 10 years. The conclusion seems unavoidable: the use of specialists working with teachers--in their own rooms with their own pupils--seems superior to the traditional pull-out compensatory effort and should be used where possible.

Reading gains in the project school were substantial and positive. Teacher behavior in the teaching of reading changed in a positive way.